APPLICABILITY OF PRIORITY BASED FIXED ASSET MAINTENANCE IN CONSTRUCTION CONTRACTORS: A CASE FROM SRI LANKA

G.R. Vidana Arachchi

(188733L)

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Department of Civil Engineering

University of Moratuwa

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Geethike Ranga Vidana Arachchi

188733L

Thesis submitted in partial fulfillment of the requirements for the degree Master of Science in Construction Project Management

Department of Civil Engineering

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DECLARATION PAGE OF THE CANDIDATE & SUPERVISOR

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ABSTRACT

Construction industry is identified as one of the most asset intensive industries. The dependance on fixed assets such as construction machinery, equipment, plant and vehicles has made industry vulnerable to failures due to not having standard practices of utilization of these fixed assets. Being a fast-moving economy in South Asia, Sri Lanka is yet to fully standardize its Construction Industry and resources utilization. The published literature suggest that it heavily depends on utilization of better Fixed Assets and Fixed Asset Maintenance Systems (FAMS). Implementation of FAMS has been a challenging task for local contractors as failure cases have seen in the recent past frequently. Delays, idling, accidents, environment damage, low service level and less efficiency of fixed assets could be identified as major drawbacks, which in return produced finance outflow from the organizations. This paper elaborates on existing maintenance approaches like corrective, preventive and predictive while aiming to research the validity of Priority based Fixed Asset Maintenance approach (PFAM) in local Construction Contractors. Based on previously conducted relevant researches of more than 5 authors, it was decided to conduct a questionnaire survey followed by a Delphi consensus to establish priority parameters on a randomly selected sample of 56 organizations to develop a suitable priority score framework. Based on the survey responses and expert opinion, Physical Condition (PC), Performance (PER), and Criticality (C) were identified as three main priority categories under which sub-priority factors were determined. 33 construction equipment were selected from a road construction company and assigned priority scores to validate the suggested methodology as a case study. 54.4% of all the contractor organizations have classified their fixed asset register including construction equipment, office equipment, spare parts or service units, furniture and fittings, plant and machinery, building and land and building fixed asset categories which are stated by IAS 16 global standard and LKAS 15 local standard. It could be concluded that majority of contractors still utilizes ‘fail and fix’ or ‘preventive’ maintenance approaches, where there is technical possibility implement PBFAM practices. The priority score framework has shown substantial validity while testing with the local road contractors with real world data.

Key words : Fixed asset management, priority based fixed asset maintenance, corrective, preventive and predictive maintenance.

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LIST OF ABBREVIATIONS

Abbreviation	Description
BC	Before Christ
C	Criticality
CBRM	Condition based risk management
CIDA	Construction industry development authority
CORM	Corrective maintenance
FAM	Fixed asset management
GDP	Gross domestic production
IAS	International accounting standards
ISO	International standards organization
LKAS	Sri Lankan accounting standards
PBFAM	Priority based fixed asset maintenance
PC	Physical condition
PE	Performance
PREDM	Predictive maintenance
PREVM	Preventive maintenance

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